START

0019392

December 16, 1991

Meeting Minutes Transmittal/Approval
General Topics Unit Managers Meeting
450 Hills St., Room 47, Richland, Washington
November 20, 1991

From/
Appvl.: Robert K. Stewart Date: 12/17/91
Robert K. Stewart, R.I. Coordinator, RL (A6-95)

Appvl.: Douglas R. Sherwood Date: 12/17/91
Douglas R. Sherwood, Representative, EPA (B5-01)

Appvl.: L Goldstein Date 1/23/92
Larry Goldstein, CERCLA Unit Supervisor, Washington Dept. of Ecology

---

The purpose of this meeting was to discuss general topics which are common to all past practices operable units.

Meeting Minutes are attached. Minutes are comprised of the following:

Attachment #1 - Summary of Meeting and Commitments and Agreements
Attachment #2 - Agenda for the Meeting
Attachment #3 - Attendance List
Attachment #4 - Commitments/Agreements Status List
Attachment #5 - Analytical Laboratory Status
Attachment #6 - Role of the WHC Tri-Party Agreement Integration Office
Attachment #7 - Update on the Sitewide Background Study
Attachment #8 - Update on Drilling: Sonic Drilling & Cone Penetrometer

---

Prepared by: Doug Fossett Date: 1/24/92
SWEC, GSSC

Concurrence by: H.A.N. Date: 1/22/92
WHC

General Topics Unit Managers Meeting
November 20, 1991

Distribution:

Dave Einan, EPA (B5-01)
Pam Innis, EPA (B5-01)
Doug Sherwood, EPA (B5-01)
Dan Duncan, EPA, Region 10, RCRA
Chuck Cline, WDOE (two copies)
Dave Nylander, WDOE (Kennewick)
R.O. Patt, OR Water Resources Dept.
Ward Staubitz, USGS
Donna Lacombe, PRC
Doug Fassett, SWEC (A4-35)
C.E. Clark, RL (A6-95)
D.L. Clark, RL (A5-55)
Julie Erickson, RL (A6-95)
R.D. Freeberg, RL (A5-19)
R.E. Gerton, RL (A4-02)
Jim Goodenough, RL (A6-95)
Elizabeth A. Bracken, RL (A5-19)
Mary Harmon, DOE-HQ (EM-442)
Paul Pak, RL (A6-95)
Jim Rasmussen, RL (A6-95)
Bob Stewart, RL (A6-95)
Nancy Werdel, RL (A5-19)
Mike Thompson, RL (A6-95)
S.H. Wisness, RL (A6-95)
J.M. Hennig, RL (A5-21)
John Stewart, USACE
Melvin Adams, WHC (H4-55)
Frank Calapristi, WHC (B2-35)
Steve Clark, WHC (H4-55)
Larry Hulstrom WHC (H4-55)
Wayne Johnson, WHC (H4-55)
Alan Krug, WHC (H4-55)
Merl Lauterbach, WHC (H4-55)
Tim Veneziano, WHC (B2-35)
Fred Roeck, WHC (H4-55)
Jim Patterson, WHC (B2-15)
Steve Weiss, WHC (H4-55)
Tom Wintczak, WHC (L4-92)
R.D. Wojtasek, WHC (L4-92)
Don Kane, EMO (K1-74)
Terri Stewart, PNL (K2-12)
Don Praast, GAO (A1-80)
Bob Henckel, WHC (H4-55)
David Pabst, WHC (B2-35)

ADMINISTRATIVE RECORDS: 1100-EM-1, 300-FF-1, 300-FF-5, 200-BP-1, 200-UP-2, 100-HR-1, 100-HR-3, 100-BC-1, 100-BC-5, 100-NR-1, 100-NR-3, 100-FR-1; Care of Susan Wray, WHC (H4-22)

Please inform Doug Fassett (SWEC) of deletions or additions to the distribution list.

Attachment #1

Summary of Meeting Commitments and Agreements
General Topics Unit Manager's Meeting
November 20, 1991

Introductions

1. Jane Monhart, branch chief of Richland operations branch at DOE headquarters was introduced.

Update on Laboratory Status

2. Joan Kessner (WHC) gave a presentation on the status of the analytical laboratories (see attachment #5) and provided the current status of visits by both WHC management to office site laboratories and off-site laboratory management personnel to Hanford.

3. TMA has appointed a corporate project manager to interface with WHC. He arrived on November 19, 1991 to meet with WHC staff and work out a number of issues requiring attention by both WHC and TMA. WHC and TMA senior management are also contacting Teledyne the week of November 18, 1991 to discuss Teledyne's turnaround times.

4. DataChem is still having problems analyzing PCB, and their pesticide laboratory is not turning out samples as quickly as they should. S-Cubed has a smaller sample load than the other laboratories and is able to continue with their normal customer work load.

5. The 222-S laboratory is currently analyzing their fourth set of EPA PE samples. 222-S received a passing score on inorganic analyses for round three.

6. PNL has completed a new organic laboratory in 325 building as part of their upgrade strategy. WHC plans to use the 325 and 222-S laboratories as backups for each other. The long-term strategy is to make 222-S into a full production laboratory.

7. WHC received eight technical proposals on October 31, 1991. It appears there is a significant amount of teaming taking place among the biding companies, as these eight proposals involve over 15 laboratories and 25 facilities.

8. Ms. Kessner stated that EPA and DOE have signed an interagency agreement concerning sample preparation and management functions. Joan Fisk the EPA sample management manager will be visiting Hanford in the near future to discuss the various aspects of the activity.

RL Integration of Past Practice Sites

9. Bill Fryer (SWEC) covered the status of the integration process of the various committees in regards to projects each is working on. Mr. Fryer said that he will have a report covering the integration process completed in the very near future. Bob Stewart (RL) is presently reviewing the first draft of Bill Fryer's report.

Update on Inspection Protocols at Past Practice Sites

10. Eric Goller (RL) gave a short presentation covering the inspection protocol document and identified Randy Krekel's role. Randy Krekel (RL) is in the environmental assessment policy group within RL. The policy group is in the process of issuing "The Protocol Site Access" document as a memorandum of understanding to the regulatory community.Role of the WHC Tri-Party Agreement Integration Office

Role of the WHC Tri- Party Agreement Integration Office

11. Dave Pabst (WHC) explained that his groups activities are those of expediters, facilitators and coordinators whose responsibility it is to see that the TPA is supported within WHC (see attachment # 6). Mike Thompson (RL) has a similar role in RL. Mr. Pabst also stated that he has single shell tank activities to follow.

Update on the Site-wide Background Study

12. Andrea Prignano (WHC) gave a presentation covering the schedule for the site-wide background study (see attachment # 7). This is a coordinated and integrated task for both RCRA and CERCLA. WHC is about half way through the completion of the task for site-wide background study and nearly completed with the required sampling.

13. Analysis of samples by off-site laboratories is in progress. OSM has received approximately one-half of the sample analyses to date. Fred Ruck (WHC) stated that the February 28, 1992 deadline was not in jeopardy at this time, but if the log jam of getting data through the labs and validation still hinders us, we let everyone know and react accordingly.

14. Bob Stewart asked about WHC's plan for incorporating radionuclides and groundwater background into their report. Mr. Ruck stated that they would have to begin meeting with EPA and Ecology on the parameters associated with radionuclides. When this was brought up a few months ago it was obvious that we needed to set down in separate forums and establish what EPA's and Ecology's expectations are on establishing radionuclides background. When the quality objectives are established, we can begin determining what soil sites are applicable.

Update on the Barrier Program

15. Jerry Cammann (WHC) gave a presentation covering Hanford's protective barrier program. Mr. Cammann covered the following eight (8) phases of the program: Bio-intrusion control, erosion and *deposition*, human interference control, barrier construction materials, prototype barrier test facility, model application and validation, natural barrier analogs, and long term climate change.

16. WHC is striving to design an alternative barrier to the commonly used RCRA cap, that is one that does not require as much maintenance, and will be capable of performing over a period of time ranging from hundreds to thousands of years. The focus of the program is centered primarily on the area DOE sites. The designed barrier is to be watertight and implement infiltration to zero comments identified as .05 centimeters per year.

17. The bio-intrusion portion of the program involves evaluating the possibility of small, but prolific burrowers creating conduits for water to get into the waste sites. An animal intrusion lysimeter facility has been set up in 200 East where three mammals are being studied.

18. Water erosion and *deposition* control is a fairly complex study. Wind erosion studies involve determining the best gravel size to be employed to minimize movement and the best admix concentrations to be employed. To develop much of the information, wind tunnel performance testing is being conducted at the Pacific Northwest Laboratories where winds up to 96 miles per hour can be generated.

    Water erosion studies are being conducted at a number of test plats throughout the Hanford site. The effects of various percentages of gravel admix, surrounding soil textures, and slopes are being evaluated as well as loss of fine soils through water erosion.

19. Human interference control includes the development and placement or deployment of a marker system to warn the future generation to avoid digging. The system will involve small circular markers placed around buried waste sites, and large monoliths (20 feet high) around the periphery of the waste sites.

20. Barrier construction materials studies include building and testing barrier prototypes, doing modeling and validation studies as well as evaluating natural analogs of the proposed barrier designs. One additional study consists of developing a long term climate change model for Hanford.

Update on Drilling-Sonic Drilling and Cone Penetrometer

21. Greg McLellan's (WHC) presentation covered sonic drilling and included both the advantages and disadvantages of the system (see attachment # 8). At the present time WHC is using a leased drill rig. WHC hopes to buy a sonic drill rig in the near future. WHC is presently drilling in

clean sites, but the objective is to make a transition into a mixed waste site mode.

22. To date, the 300-FF-5 is the first location that the sonic drill has been employed and three wells have been completed in five weeks. The wells varied in depth from 45 feet to a little over 70 feet. Employing the sonic drill head also made it possible to extract a casing that had been stuck. The sonic drill will drill through large rocks rather than going around them. Another very important advantage is that the system doesn't employ a circulation medium so secondary waste is minimized.

Cone Penetrometer Work

23. Virginia Rohay (WHC) discussed the use of the cone penetrometer whose technology has been in use for about fifty years (see attachment # 8). Applied Research Associates is the company on-site doing the work. The system being employed at Hanford is a mobile unit that employs the weight of the truck to force the cone into the ground. As the cone penetrates in the soil, data is collected near the tip electronically and transmitted to the on board computer via cable inside the cone rods.

24. The advantages of the cone penetrometer are: no waste is brought to the surface; no water is used in drilling; and the drilling process is faster.

25. The cone penetrometer is presently being employed in support of the carbon tetrachloride and volatile organics associated with soil gas sampling.

26. To date, thirteen penetrations have been made, of these, six went below ten feet, and the deepest went to sixty-six feet next to one of the carbon tetrachloride cribs. A permanent soil gas monitoring was placed at the sixty-six foot level. The initial carbon tetrachloride concentrations measured with this probe were on the order of 6,000 parts per million.

Action Item Status

27. Bill Fryer presented the action items status for discussion, comments and modifications.

UMM Schedule Through March 1992

December 17, 1991
January 22 and 23, 1992
February 26 and 27, 1992
March 25 and 26, 1992

Attachment #2

Agenda
Unit Managers Meeting
November 20, 1991

General Topics

9:00 - 9:10
Approval of September Unit Managers Meeting Minutes - Doug Fassett

9:10 - 9:25
Update on Laboratory Status - Joan Kessner

9:25 - 9:40
DOE Integration of Past Practice Sites - Bob Stewart/Bill Fryer

9:40 - 9:50
Update on Inspection Protocols at Past Practice Sites - Eric Goller

9:50 - 10:00
Role of the Tri-Party Agreement Integration Office - Dave Pabst

10:00 - 10:15
Break

10:15 - 10:30
Update on the Sitewide Background Study - Andrea Prignano

10:30 - 11:00
Update on the Barrier Program - Jerry Cammann

11.00- 11.30
Update on Drilling-Sonic Drilling & Cone Penetration - Greg McLellan
Virginia Rohay

11:30 - 12.00:
Action Item Status - Doug Fassett
November Unit Managers Meeting - Bob Stewart

Attachment #3

Attendance List

General Topics Unit Managers Meeting
November 20, 1991

Name	Org.	O.U. Role	Phone
Sprecha, Jon	B & C	Ecology Support	(503) 244-7005
Erickson, Julie	DOE-RL	ERD	(509) 376-3603
Goller, Eric	DOE-RL	RCRA Prog. Manager	(509) 376-7326
McLeod, Bob	DOE-RL	ERD	(509) 372-0096
Monhart, Jane	DOE-HQ		(301) 903-7684
Stewart, Robert K.	DOE-RL	Gen. Top. Meet. Chair	(509) 376-6192
Thompson, Michael K.	DOE-RL	TPA	(509) 376-6421
Cline, Chuck	Ecology	Geohydrology	(206) 438-7556
Hibbard, Richard	Ecology	Unit Support	(206) 493-9367
Mauss, Billie	Ecology	CERCLA	(509) 546-2993
Teel, Darci	Ecology	CERCLA	(509) 545-2312
Einan, Dave	EPA	Unit Manager	(509) 376-3883
Innis, Pamela	EPA	Unit Manager	(509) 376-5466
Lacombe, Donna	PRC	EPA Contractor	(206) 624-2692
Fryer, Bill	SWEC	GSSC to DOE/RL	(509) 376-9707
Knox, Kathy	SWEC	GSSC to DOE/RL	(509) 376-5011
McClung, Bill	SWEC	GSSC to DOE/RL	(509) 376-1853
Kane, William	Parametrix	Ecology Support	(206) 455-2550
Mullen, Richard	Parametrix	Ecology Support	(206) 455-2550
Drost, Brian	USGS	EPA Support	(206) 593-6510
Staubitz, Ward	USGS	EPA Support	(206) 593-6510
Cammann, J.W.	WHC	Manager, Technology	(509) 376-8506
Day, Robert J.	WHC	EPA Lead Sites	(509) 376-7602
Downey, H.D.	WHC	Program Office	(509) 376-5539
Henckel, Robert P.	WHC	Env. Eng., OU Support	(509) 376-2091
Kessner, Joan	WHC	Laboratories	(509) 373-3507
Lauterbach, Merl	WHC	RR/ENV	(509) 376-5257
McLellan, Greg	WHC	Drilling Technology	(509) 376-2260
Mix, Pauline	WHC	Activity Engineer	(509) 376-1543
Pabst, David	WHC	100 Area OCL Mgr.	(509) 376-9048
Paterson, Jim	WHC	ER Program Office	(509) 376-0568
Prignano, Andrea	WHC	RCRA Closure	(509) 376-7513
Rick, Fred	WHC	RCRA Closure	(509) 376-9876
Roeck, Fred	WHC	RR/ENV	(509) 376-8819
Rohay, V.J.	WHC	Carbontet., ERA	(509) 376-5507
Smet, A.K.	WHC	NA	(509) 376-6558
Smith, Ed	WHC	EA/CWM	(509) 367-4511

Attachment #4

Action Items Status List
General Topics Unit Managers Meeting
November 20, 1991

Item No.	Action/Source of Action	Status
GT.38	If possible, at the May Unit Managers Meeting a presentation on the approved, preferred alternative method for disposal of the reactors will be given. Action: Jim Goodenough (4/18/90, GT-UMM)	Open The EIS will be reviewed by Admiral Watkins' office and Nuclear Safety (4/16/91). The RL program at DOE/HQ has written a letter to EH urging EH to quickly approve the final EIS and allow it to be published (6/19/91). Waiting for action from headquarters (8/8/91).
GT.71A	Provide the Environmental Information Management Plan (EIMP) and the Information Management Systems Plan (IMSP) to EPA and Ecology. Action: Nancy Werdel (9/18/91, GT.UMM)	Open The records management plan was completed and it will be sent to the regulators (9/18/91).
GT.76A	DOE is to respond to the comments that were provided by Ecology and EPA on the revised EIIs 4.2 and 5.4. The EIIs are related to the handling of drilling decontamination fluids. Action: Bob Stewart (7/17/91)	Open An updated draft strategy was provided to EPA and Ecology. (10/16/91)

GT.77A	A mechanism for the WHC to inform the regulators of sample results and disposal methods for rinsate is to be developed. Action: Hal Downey (7/17/91)	Open This action has been forwarded to Bob Hobbs, the manager in WHC responsible for the disposition of decontamination rinsate waters generated at drill sites. His organization obtains the sample data, submits it for designation, and subsequently disposes of the waste. Mr. Hobbs will contact Mr. Hibbard to discuss a method for sharing data with regard to waste designation (8/6/91). Efforts to contact Mr. Hibbard in the weeks of 9/9/91 and 9/16/91 were unsuccessful (9/17/91). An alternate means of communication was arranged (9/18/91).
GT.104	A presentation on inter-program coordination between the Waste Management Division and the Environmental Restoration Division is to be given. Ecology requests that information on management decision making, data management, field work and cross-program communication between ERD and WMD be included. Specific examples include: 1) decontamination and decommissioning of the reactors; 2) surface radiation reduction; 3) RCRA-site activities; and, 4) reactor operations (mulberry trees). The objective is to assure the regulators that these activities are being conducted in accordance with federal and state law, the TPA, and any ongoing or planned past practice work. Action: *David Pabst (WHC)* (4/16/91)	Open Bill Fryer will partially address this action as part of the operable unit consistency task (7/17/91). Bob Stewart suggested that the presentation at the September Project Managers Meeting be given at a Unit Managers Meeting (9/18/91). The subject was not addressed at the September meeting and will be given at the October Project Managers Meeting (10/16/91).

GT.108	Protocols are to be developed to facilitate conduct of regulatory inspections and site visits at past practice sites. Action: Eric Goller (DOE) (6/19/91)	Open The unofficial draft was provided to the regulators on 10/16/91 (10/16/91).
GT.109	The surpassing of the turnaround times identified in the TPA for radiochemical sample analyses and the actions that will be taken to improve the turnaround times are to be provided to the regulators in a written document. Action: Joan Kessner (WHC) (7/19/91)	Closed The documents were given to EPA and Ecology on 10/16/91 (10/16/91).
GT.111	EPA and Ecology are to provide comments on the "Draft Data Validation Procedures for Chemical Analyses" received from WHC at the August 1991 1100-EM-1 Unit Managers Meeting. Action: Dave Einan and Rich Hibbard (8/14/91)	Closed Billie Mauss (Ecology) and Donna Lacombe have completed their comments (10/16/91).
GT.112	Conflicting requirements by the regulators will be described and provided to Julie Erickson by the end of the week of September 23. The conflicts will then be provided to the regulators (Larry Goldstein and Doug Sherwood) by the end of September. Action: Bill Fryer (9/18/91)	Open The efforts are ongoing (10/16/91).
GT.113	Provide an explanation of how information, including supplementary documents, on new sites and on sites that have been cleaned up is included in WIDS. Examples will be provided for illustration. The explanation is to be provided by the first week of October. Action: Nancy Werdel (9/18/91)	Open Dick Fox (WHC) provided the information on WIDS to Nancy Werdel on the 8th of October (10/16/91).

GT.114	Determine where the macro engineering study is in the approval process of DOE. A presentation will be contingent on DOE management approval. Action: Allan Harris (9/18/91)	Open WHC gave a presentation to DOE at the unit manager level, then to upper management (Mr. Bixby and Mr. Little) on 10/10/91. A presentation to DOE-HQ will be scheduled before it is given to EPA and Ecology. The document is currently under RL review (10/16/91).

ANALYTICAL SERVICES STATUS

Joan Kessner

November 20, 1991

COMMERCIAL CONTRACTS

- WHC continues to work with laboratories to improve turnaround times and efficiency.
- Weston expects to award ECOTEK contract within a week of November 18, 1991.
- TMA visit to WHC scheduled for November 19, 1991.
- WHC Senior Management to contact Teledyne directly during the week of November 18, 1991.

RFP STATUS

- Eight Technical Proposals received October 31.
- Over 15 laboratories and 25 facilities are represented.
- Evaluation team has been formed
  - WHC Procurement, OSM, ESQA, EEG are represented.
- Evaluation of technical proposals underway.

ON-SITE LABORATORIES

- 222-S analyzing fourth set of EPA PE samples.
- 222-S received passing score on inorganic PE number three - Organic results not yet received.
- PNL Organic upgrade complete.

CURRENT LABORATORY PERFORMANCE

Analysis Type	TPA Turnaround Requirements	Laboratory	Current Performance*	Projected TPA Compliance
Chemical	50 Days	DataChem	35	Continue
		S-Cubed	40	Continue
		Weston	80	Jan. 1992
		TMA	75	March 1992
Radiochemical	75 Days avg (not to exceed 90 Days)	Weston	130	May 1992
		TMA	90	May 1992

* performance through September 1991

ROLE OF WHC TRI-PARTY AGREEMENT INTEGRATION OFFICE

OBJECTIVE: Provide integration and coordination of assigned TPA milestone activities that span multiple WHC divisions. Ensure milestones continue on schedule and budget, and that appropriate changes are effected. Provide interface with other WHC organizations, USDOE-RL, other RL contractors, regulatory agencies, and the public.

WHAT DOES IT MEAN

- **Coordinate and Facilitate Interfaces to Meet TPA Milestones**
- **Review and Concur with Technical, Cost and Schedule Approach to Meeting TPA Milestones**
- **Take Ownership of Correspondence from Customer that Require Action Related to Milestone**
- **Ensure Issues which Impact Milestone are Resolved in a Timely Manner**
- **Support Operating Organizations to Meet TPA Milestones**

SITE-WIDE BACKGROUND STUDY

SCHEDULE UPDATE

RCRA CLOSURE ACTIVITIES SECTION

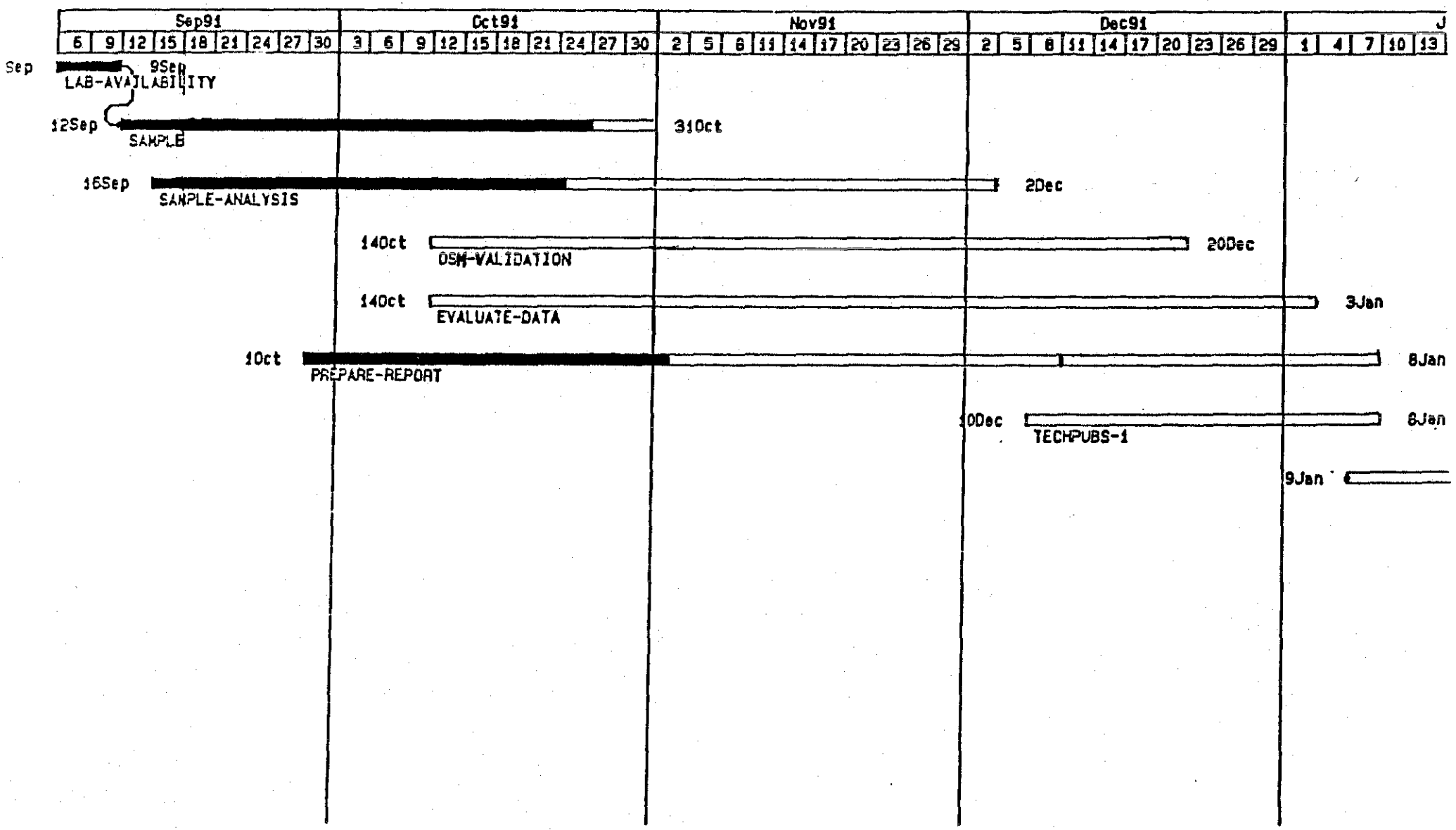
November 20, 1991

November 20, 1991

SCHEDULE FOR SITE-WIDE BACKGROUND, SOIL STUDY (M-28-03)

task	start	complete	status
Lab Availablility	09/06/91	09/11/91	completed - on time
Sample	09/12/91	10/31/91	~90% (1 site left for inorganics)
Analysis by Off-Site lab	09/16/91	12/02/91	in progress
OSM Validation	10/14/91	12/20/91	in progress
Start Report - Intro	10/01/91	12/10/91	in progress
Evaluate Data	10/14/91	12/03/91	behind
Finalize Report - Results	12/10/91	01/08/92	
Editing	12/23/91	01/08/92	
Review (WHC/DOE)	01/09/92	01/29/92	
Comments/Editing	01/30/92	02/12/92	
Concurrence (WHC/DOE)	02/13/92	02/27/92	
Transmit	02/28/92		

SITE-WIDE BACKGROUND - SOIL SAMPLING PROJECT



November 20, 1991

SAMPLING ACTIVITIES
(M-28-03)

Inorganics Sites:

site #	location	date sampled	date labs received samples	date OSM received data	number of samples
1	sub ramp	09/12	09/17	9/30	3
2	WPPSS pit	09/26	10/07	11/11	6
3	Wye Bar.				~10
4	old Hanford	10/08	10/12		3
5	S. of 100D	10/21	10/24	11/11	9
6	grout pit	10/08	10/12		16
7	sub pit	10/11	10/19		10
8, 9	200E; Batch Plant	10/11	10/19		15
10	N. of Y-bar.	10/08	10/12		5
11	Cold Creek	10/15	10/19		5
12	Rattlesnake springs	09/24	09/30	10/31	9
13,14	off-site	10/01	10/08	11/11	15

Archived Samples:

archived samples	date collected	date labs received samples	date OSM received data	number of samples
Y-barricade Borehole (1)	09/24	09/30	10/31	7
Y-barricade Borehole (2)	09/26	10/07	11/11	11

Attachment 3 2

SONIC DRILLING METHOD

GREG McLELLAN
ENVIRONMENTAL FIELD
SERVICES, WESTINGHOUSE

DRILLING TECHNOLOGY

SONIC PERFORMANCE AT 300-FF-5

(9/3/91 THROUGH 10/11/91)

- **COMPLETED 3 GROUND WATER WELLS**

- **EXTRACTED STUCK CASING FROM CABLE TOOL DRILLED WELL**

DRILLING TECHNOLOGY

SONIC PERFORMANCE AT 100-D

(10/13/91 THROUGH 11/13/91)

- **COMPLETED 2 RCRA WELLS TO 85 AND 103 FEET IN COARSE GRAVELS AND COBBLES**

DRILLING TECHNOLOGY

SONIC -- ADVANTAGES

- CONTINUOUS SAMPLING
- PENETRATION RATE
- NO STUCK CASINGS
- RETRIEVAL OF STUCK CASING

SONIC -- DISADVANTAGES

- CURRENT WELL COMPLETION SIZE
- TELESCOPING CAPABILITY

SONIC -- ENHANCEMENTS (NEAR TERM)

- DRILLING TOOLS
- DRILL RIG

SONIC DRILLING (LONG TERM)

- **CURRENT CONTRACT**

- **RIG PROCUREMENT**

DRILLING TECHNOLOGY

SONIC -- DRILLING SCHEDULE

- **3000 AREA -- UNDERGROUND STORAGE TANK INVESTIGATION**

- **200 WEST -- CARBON TETRACHLORIDE VAPOR EXTRACTION WELLS**

Virginia Rohay
11/20/91
Unit Managers Meeting

CONE PENETROMETER BACKGROUND

- Used for over 50 years
  - Stratigraphic Logging
  - Evaluation Of Soil Properties
- In Last 5-10 Years
  - Environmental Site Characterization Studies
  - Groundwater And Soil Gas Sampling

ELECTRONIC CONE PENETROMETER TEST

- Instrumented Probe
- Data Transmitted From Probe Via Cable To Computer In Cone Penetrometer Truck
- One Data Set Recorded Every Second (One Data Set Per 0.8 in Of Advance)
- Forced Into Ground Using Pair Of Large Hydraulic Cylinders Bolted To Frame Of Heavy Truck (Push Capacity Of 45,000 lbs)
- Conducted According To ASTM D3441

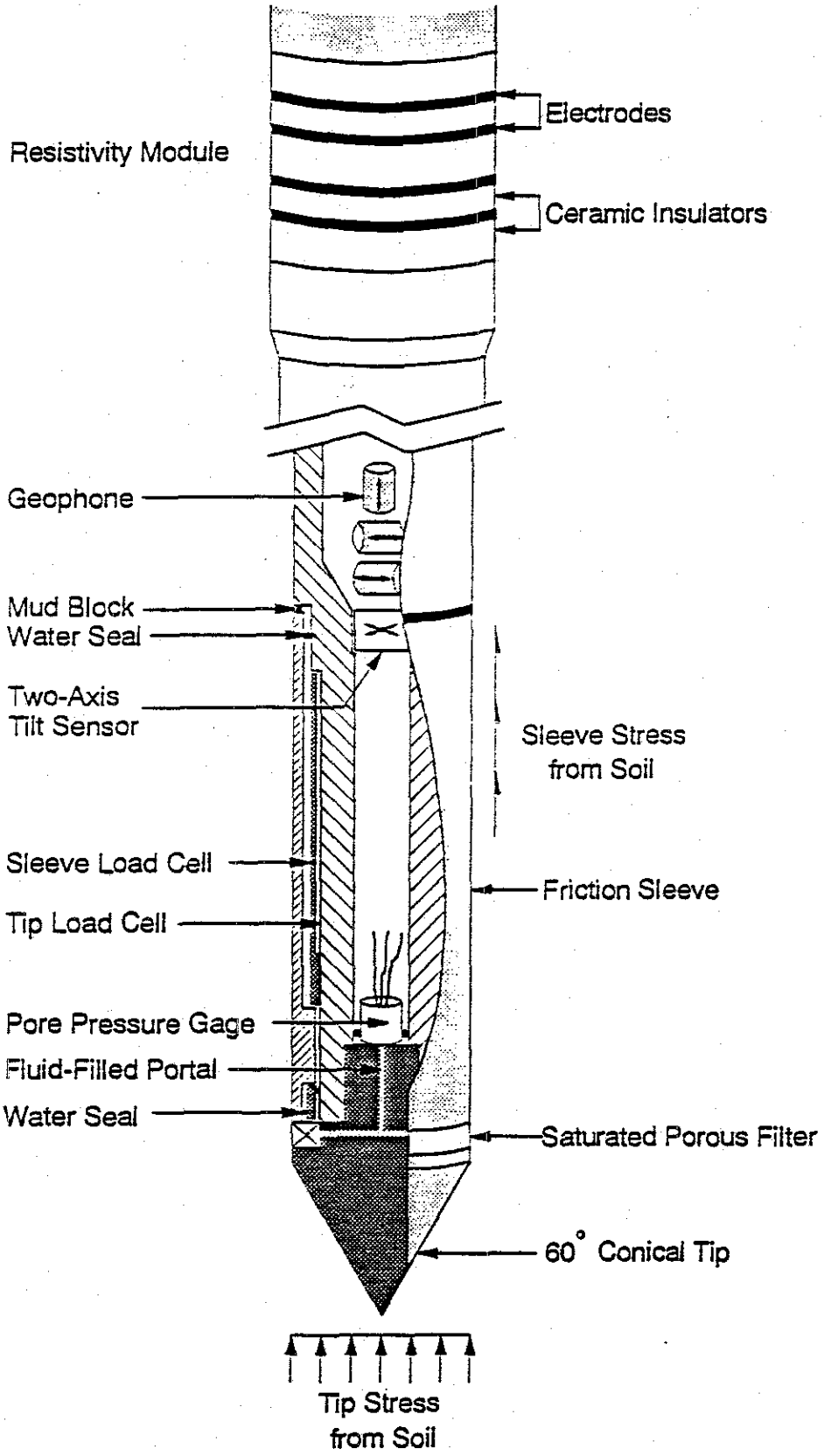
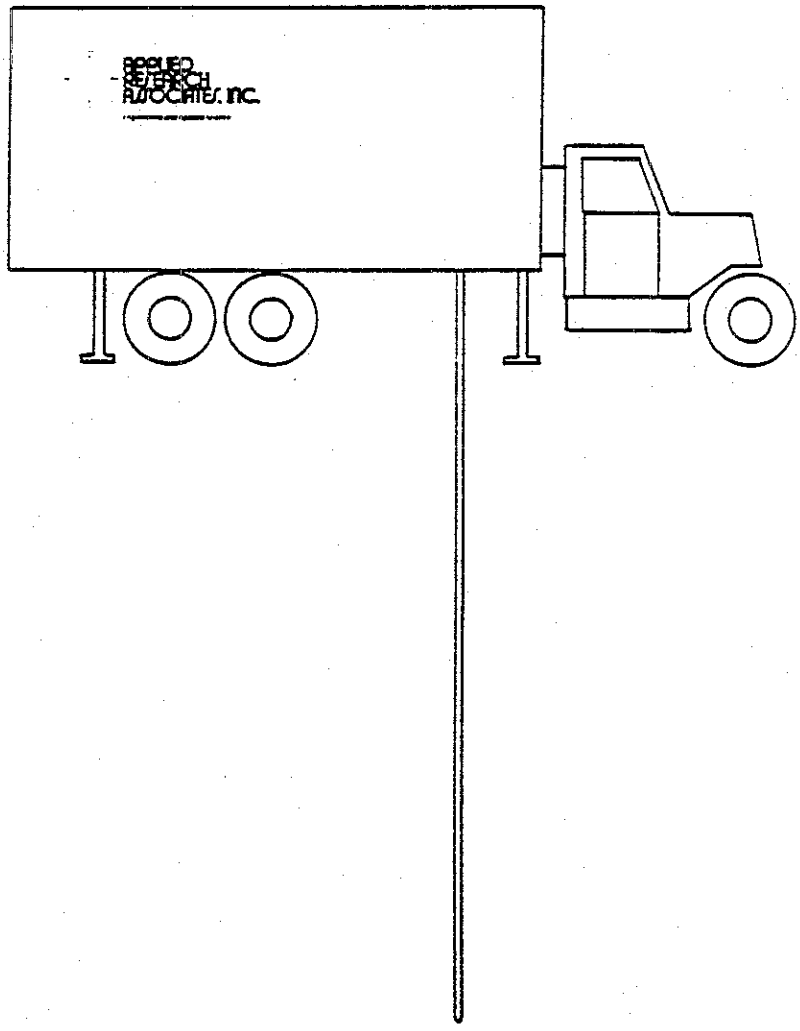


Figure 1. Schematic of ARA's cone penetrometer probe.

APPLIED RESEARCH ASSOCIATES, INC.

Engineering and Applied Science

Electric Cone Penetration Testing and Geophysical Services



New England Division
Box 120A, Waterman Road
S. Royalton VT 05068
(802) 763-8348

ADVANTAGES

- Brings No Material To Surface
- Uses No Drilling Water
- Minimizes Contact Of Equipment And Personnel With Contaminants
- Faster Than Conventional Borehole Drilling
- Cheaper Than Conventional Borehole Drilling
- Continuous Data With Depth
- In Situ Measurements
- Delineates Very Thin Layers

TEST OBJECTIVES

- Determine Depths/Lithologies Which Can Be Penetrated
- Monitor Soil Gas For Organic Compounds
- Sample And Analyze Dense, Nonaqueous Phase Liquids If Encountered
- Measure Resistivity
- Detect Seismic Signals
- Install Vadose Zone Wells

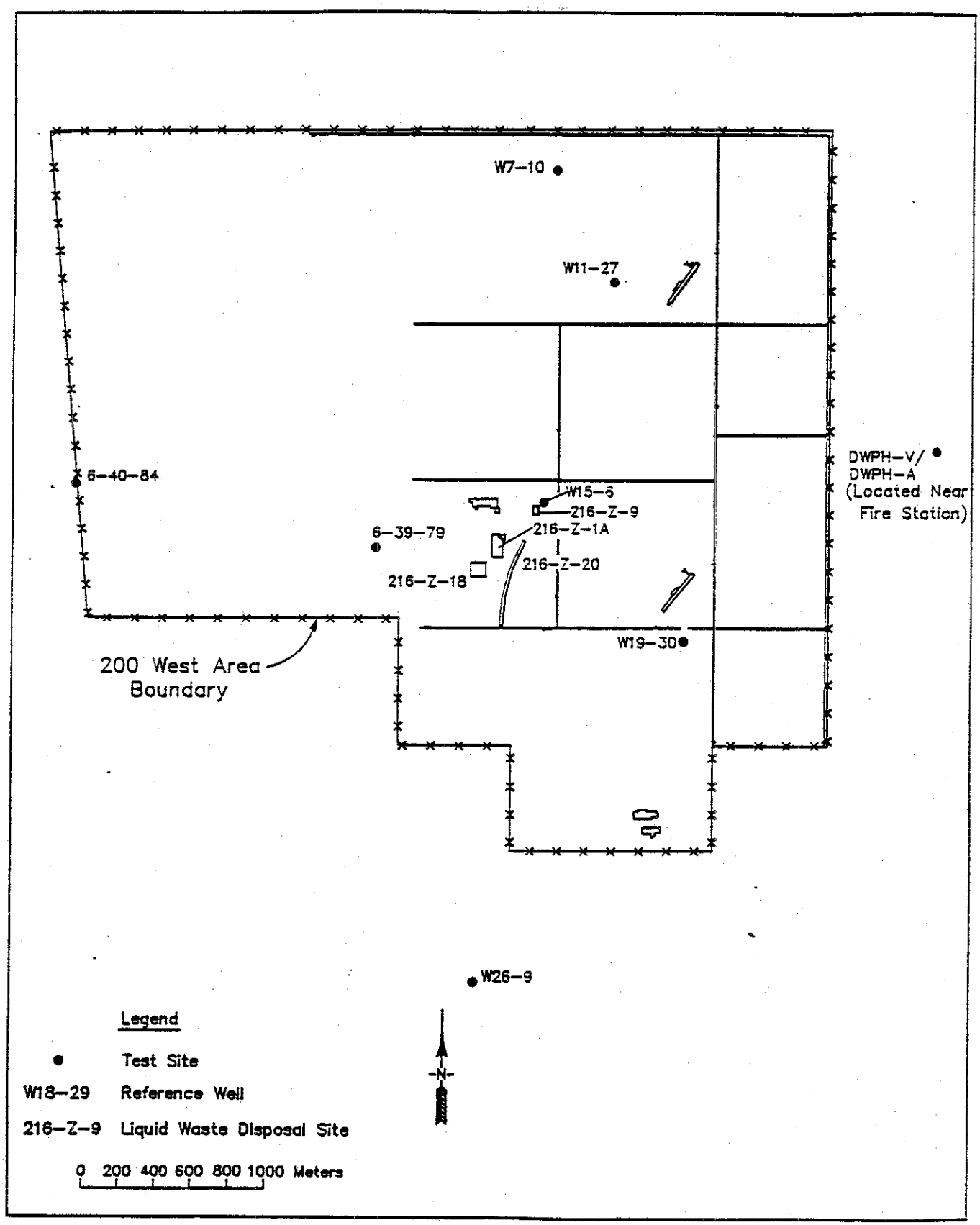


Figure 1.2. 200 West Area site map showing locations of ECPT testing (Rohay, 1991).

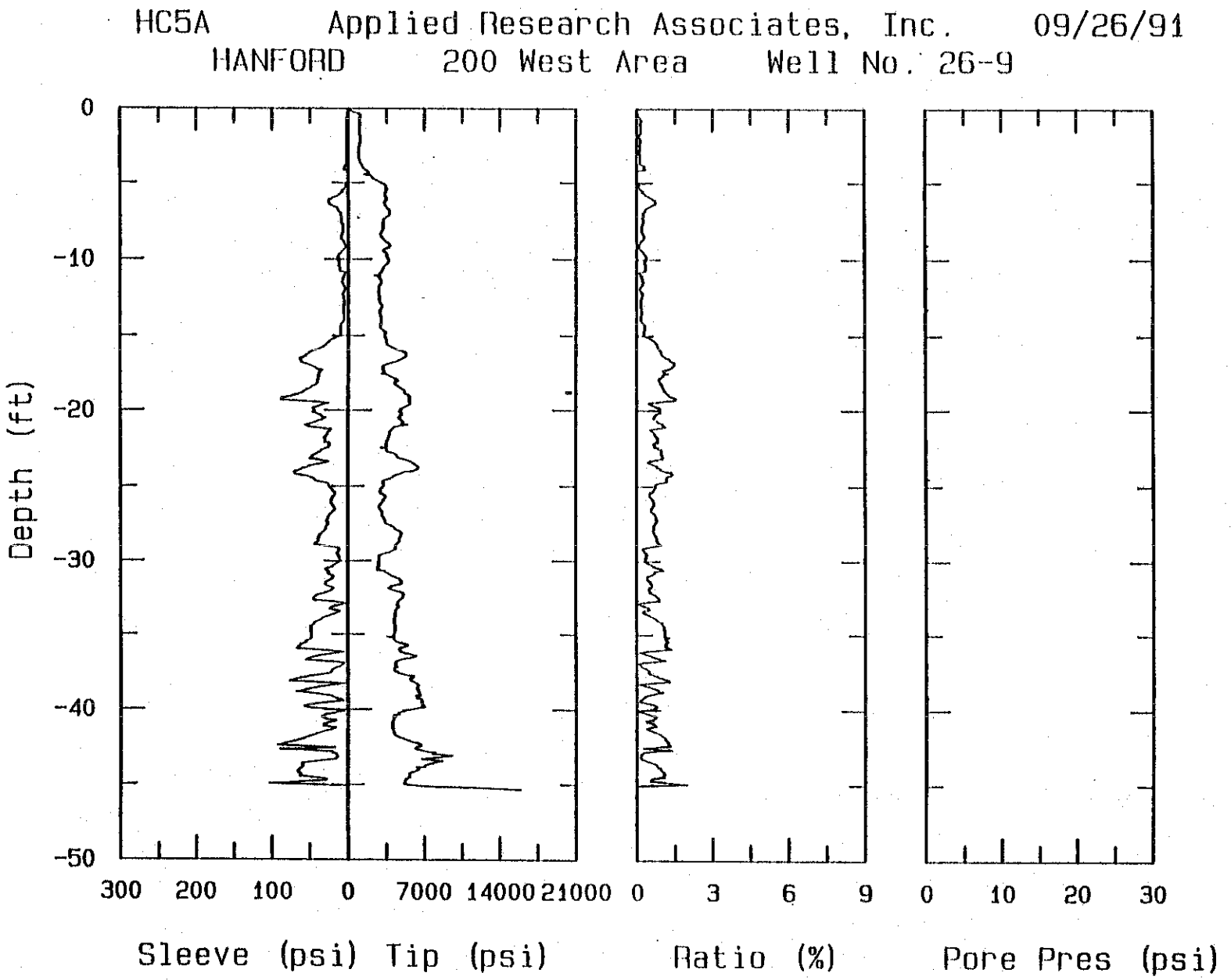


Figure 3.10. Penetration test near Well 26-9.

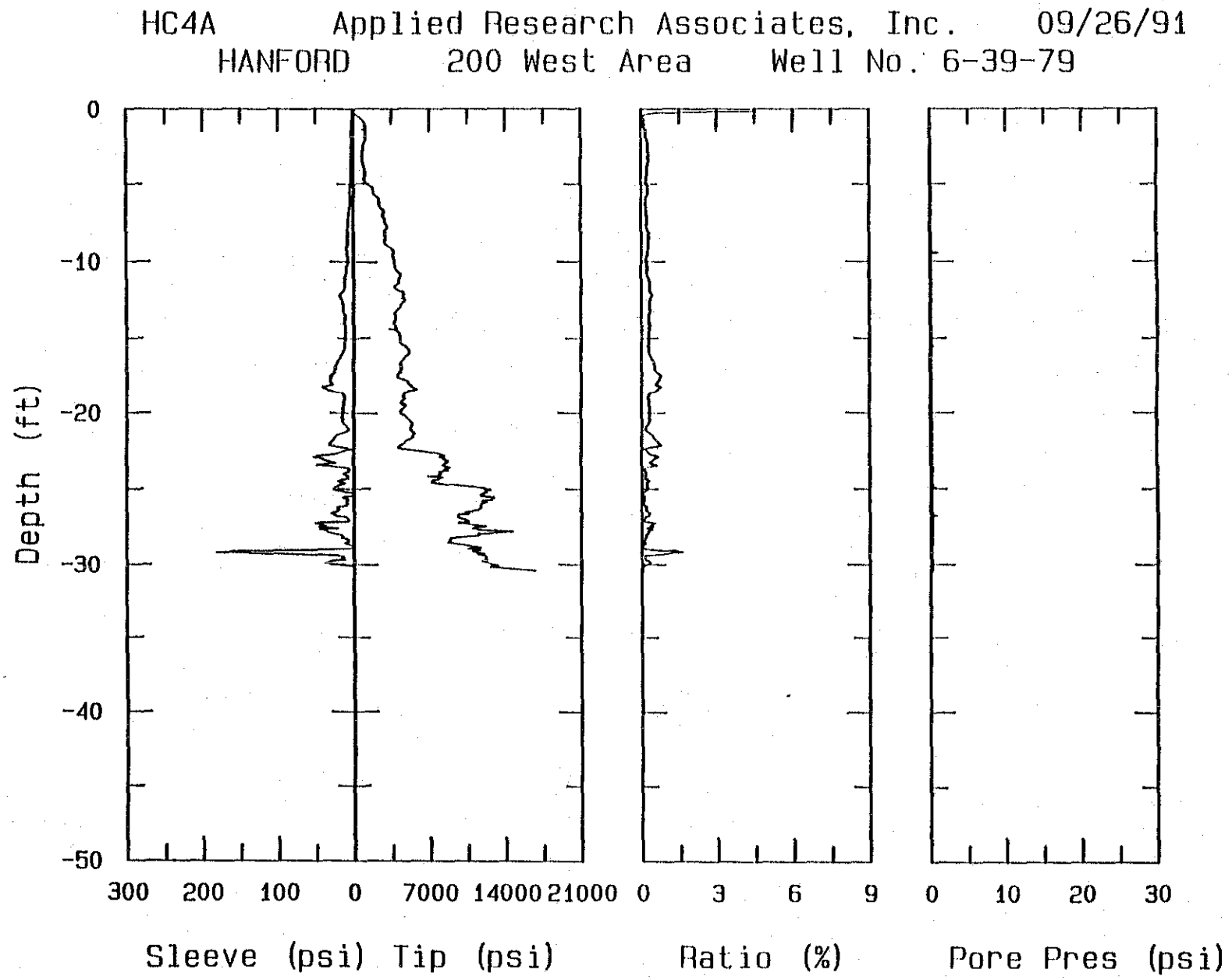


Figure 3.9. Penetration test near Well 6-39-79.

POSSIBLE MODIFICATIONS

- Need Better Penetration Ability To Get Through Cobbles/Boulders
  - Drill In Combination With Pushing
  - Improve Piercing Capabilities (Tip Shape, Duration Of Blow, Downhole Hammer, Increased Load)
- Radiation Probe
- Ground Penetrating Radar

FUTURE WORK FOR 200 WEST AREA CARBON TETRACHLORIDE EXPEDITED RESPONSE ACTION AND VOC-ARID INTEGRATED DEMONSTRATION

- Install Additional Vadose Zone Wells
  - Extraction/Injection
  - Soil Vapor Monitoring
- Deploy Other Subsurface Sensors
- Additional Site Characterization